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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KESSEL, MARIS R

ART UNIT

PAPER NUMBER

1759

MAIL DATE

DELIVERY MODE

11/22/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,817	Applicant(s) CHEN ET AL.	
	Examiner MARIS R. KESSEL	Art Unit 1759	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-14 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-14 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 02 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Arguments

Applicant's arguments, see p. 4, filed September 15, 2011, with respect to claim 5 under 35 USC § 112, second paragraph have been fully considered and are persuasive. The rejection of claim 5 under 35 USC § 112, second paragraph has been withdrawn.

Applicant's arguments with respect to claims 1-8 and 10-14 under 35 USC § 102 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 9 under 35 USC § 103 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 and 6-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Barlow et al. (WO 02/45835 A2) (hereinafter "Barlow").

Regarding claim 1, Barlow teaches an apparatus for arraying particles (abstract), the apparatus comprising: a) a substrate comprising an array of electrodes (patterned conducting regions of small size, p. 6, Ins. 27-33, Fig. 1); b) a counter-electrode plate substantially parallel to the array of electrodes (Fig. 1, electrode 12); and c) a flow chamber comprising a fluid inlet for permitting a particle- containing fluid to flow

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between the array of electrodes and the counter-electrode plate (a fluid containing small objects is held between the two electrodes, p. 6, Ins. 27-33, Fig. 1, flow of sample from inlet is inherent to the function of the device, and such flow takes place between the electrode array and the electrode plate), wherein the counter-electrode plate forms the lid of the flow chamber (Fig. 1).

Regarding claim 2, Barlow teaches wherein the apparatus further comprises a voltage source for applying a voltage between the array of electrodes and the counter-electrode (Fig. 1, electric potential is applied between the electrodes, p. 6, In. 33 to p. 7, In. 1).

Regarding claim 3, Barlow teaches wherein the voltage source provides a voltage of not greater than about 100 volts/mm (applied potential of 3V, Fig. 4, p.8, Ins. 18-20).

Regarding claim 4, Barlow teaches wherein the substrate comprises at least one cell- adhesive region and at least one non-cell-adhesive region (array of electrode with surrounding non-adhesive domain formed of agarose, p. 21, Ins. 12-15).

Regarding claim 6, Barlow teaches further comprising a fluid outlet (space between electrodes, Fig. 1).

Regarding claim 7, Barlow teaches wherein the electrode array comprises at least 50 electrodes (Fig. 2, showing over 100 electrodes).

Regarding claim 8, Barlow teaches wherein the electrode array comprises at least 100 electrodes (Fig. 2, showing over 100 electrodes).

Regarding claim 9, Barlow teaches wherein each electrode of the electrode array is less than 100 microns in diameter (Fig. 2, patterned with regions of 50 microns, p. 6 Ins. 20-21, p. 12, Ins. 23-26).

Regarding claim 10, the limitation "wherein each electrode can be energized independently" is deemed to be a statement with regard to the intended use and is not further limiting in so far as the structure of the product is concerned. In article claims, a claimed intended use must result in a **structural difference** between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. MPEP § 2111.02. The apparatus as taught by Barlow is capable of being used wherein each electrode can be energized independently.

Regarding claim 11, Barlow teaches a method for arraying particles on a surface, the method comprising (abstract): a) providing an apparatus comprising: i) a substrate comprising an array of electrodes (patterned conducting regions of small size, p. 6, Ins. 27-33, Fig. 1); ii) a counter-electrode plate substantially parallel to the array of electrodes (Fig. 1, electrode 12); iii) a fluid inlet for permitting a particle- containing fluid to flow between the array of electrodes and the counter-electrode plate (a fluid containing small objects is held between the two electrodes, p. 6, Ins. 27-33, Fig. 1, flow of sample from inlet is inherent to the function of the device, and such flow takes place between the electrode array and the electrode plate); b) flowing a particle-containing fluid between the array of electrodes and the counter-electrode plate (solution containing cells between electrodes, p. 6, Ins. 15-19); and c) subjecting the fluid to an electric field by applying an electric potential to the array of electrodes under

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conditions such that particles in the fluid are arrayed on a surface of the substrate (electric potential is applied between the electrodes to pattern cells, p. 6, ln. 33 to p. 7, ln. 8).

Regarding claim 12, Barlow teaches wherein the particles are cells (living cells, p. 7, lns. 7-8).

Regarding claim 13, Barlow teaches wherein the substrate comprises at least one cell- adhesive region and at least one non-cell-adhesive region (array of electrode with surrounding non-adhesive domain formed of agarose, p. 21, lns. 12-15).

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barlow as applied to claims 1 and 11 above and further in view of Vogel (US 2003/0098248) (hereinafter "Vogel").

Regarding claims 5 and 14, Barlow teaches wherein the array of electrodes have surrounding non-adhesive domain formed of agarose. Examiner interprets this to mean that the electrodes have adhesive properties. Barlow fails to teach wherein the cell adhesive region comprises a layer of fibronectin or collagen.

Vogel teaches a system for arraying cells (abstract) comprising an array of electrodes (196a, Fig. 6 and 7, para. [0060]) with adhesion/binding surfaces (204, Fig. 6 and 7, examples 2 and 5, para. [0078], [0060]) wherein the binding surfaces have a layer of fibronectin or collagen (para. [0063]).

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Barlow and Vogel before him or her, to modify the adhesive electrodes of Barlow to include collagen or fibronectin.

The suggestion for doing so would have been to increase binding to the electrodes by an adhesion promoter such as collagen or fibronectin (Vogel, para. [0063])

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIS R. KESSEL whose telephone number is

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(571)270-7698. The examiner can normally be reached on Monday through Friday, 9 A.M. to 6 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey T. Barton can be reached on (571)272-1307. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. R. K./
M.R.K.
Examiner, Art Unit 1759

/Jeffrey T Barton/
Supervisory Patent Examiner, Art Unit 1759
18 November 2011